## LISTING OF CLAIMS

The following is a complete listing of the claims currently in the application, identifying their status as a result of previous restriction requirements, wherein Claims 1-17 are amended, Claims 2, 4, 9, 14-16, 18, 20, 25, and 30-32 are withdrawn, and new Claims 33-40 are added:

1. (currently amended) A three-dimensional molecular switch assembly, formed on a substrate, said molecular switch assembly comprising:

a first monolayer of seed molecules for initiating self-assembled molecular growth, said first monolayer formed on said substrate;

a second monolayer of active molecules comprising a plurality of rotor moieties and stator moieties, with one rotor moiety supported between two stator moieties, said second monolayer of active molecules formed on said first monolayer of seed molecules, with a one-to-one correspondence between molecules in said first monolayer and said second monolayer;

a third monolayer of spacer molecules, formed on said second monolayer of active molecules, with a one-to-one correspondence between molecules in said second monolayer and said third monolayer; and

a plurality of alternating second monolayers and third monolayers having said one-to-one correspondence,

wherein said active molecules are switchable between two different states by an applied external electric field.

2. (withdrawn; currently amended) The three-dimensional molecular switch assembly of Claim 1 wherein said seed molecules comprise at least one connector portion and an interconnecting portion.

3. (currently amended) The three-dimensional molecular switch assembly of Claim 2 wherein said seed molecules comprise two asymmetric connector portions, on opposite sides of said interconnecting portion.

4. (withdrawn, currently amended) The three-dimensional molecular switch assembly of Claim 1 wherein said active molecules comprise said rotor moieties and said stator moieties, and at least one connector portion connected to at least one said stator moiety.

5. (currently amended) The three-dimensional molecular switch assembly of Claim 4 wherein said active molecules comprise two connector portions connected to said at least one stator moiety, on opposite sides thereof to form a first connector portion and a second connector portion.

6. (currently amended) The three-dimensional molecular switch assembly of Claim 5 wherein each said connector portion has at least one functional group thereon, which is the same for said first connector portions and said second connector portions.

7. (currently amended) The three-dimensional molecular switch assembly of Claim 5 wherein said first connector portions each have at least one first functional group thereon, which is the same for all first connector portions and wherein said second connector portions each have at least one second functional group thereon, which is the same for all second connector portions, wherein said at least one first functional group is different than said at least one second functional group.

8. (currently amended) The three-dimensional molecular switch assembly of Claim 4 wherein not all stator moieties have any said connector portions connected thereto.

9. (withdrawn, currently amended) The three-dimensional molecular switch assembly of Claim 1 wherein said spacer molecules comprise at least one connector portion and an interconnecting portion.

10. (currently amended) The three-dimensional molecular switch assembly of Claim 9 wherein said spacer molecules comprise two connector portions, on opposite sides of said interconnecting portion.

11. (currently amended) The three-dimensional molecular switch assembly of Claim 10 wherein each said connector portion has at least one functional group thereon, which is the same for said first connector portions and said second connector portions.

12. (currently amended) The three-dimensional molecular switch assembly of Claim 10 wherein said first connector portions each have at least one first functional group thereon, which is the same for all first connector portions and wherein said second connector portions each have at least one second functional group thereon, which is the same for all second connector portions, wherein said at least one first functional group is different than said at least one second functional group.

13. (currently amended) The three-dimensional molecular switch assembly of Claim 1 wherein said substrate comprises a first electrode and wherein said molecular assembly further comprises a second electrode formed on an uppermost monolayer.

14. (withdrawn, currently amended) The three-dimensional molecular switch assembly of Claim 13 wherein said third monolayer is formed on said first monolayer, said second monolayer is formed on said third monolayer, with subsequent alternating third monolayers and second monolayers, with said second electrode formed on said uppermost monolayer.

15. (withdrawn, currently amended) The three-dimensional molecular switch assembly of Claim 13 wherein said seed layer is omitted, said second monolayer is formed directly on said first electrode, and said third monolayer is formed on said second monolayer, with subsequent alternating second monolayers and third monolayers, with said second electrode formed on said uppermost monolayer.

16. (withdrawn, currently amended) The three-dimensional molecular switch assembly of Claim 13 wherein said seed layer is omitted, said third monolayer is formed directly on said first electrode, and said second monolayer is formed on said third monolayer, with subsequent alternating third monolayers and second monolayers, with said second electrode formed on said uppermost monolayer.

17. (currently amended) A method for fabricating a three-dimensional switch molecular assembly, formed on a substrate, said method comprising:

forming on said substrate a first monolayer of seed molecules for initiating self-assembled molecular growth;

forming, via molecular self-assembly, on said first monolayer a second monolayer of active molecules comprising a plurality of rotor moieties and stator moieties, with one rotor moiety supported between two stator moieties, with a one-to-one correspondence between molecules in said first monolayer and said second monolayer;

forming, via molecular self-assembly, on said second monolayer a third monolayer of spacer molecules, with a one-to-one correspondence between molecules in said second monolayer and said third monolayer; and

forming, via molecular self-assembly, a plurality of alternating second monolayers and third monolayers having said one-to-one correspondence,

wherein said active molecules are switchable between two different states by an applied external electric field.

18. (withdrawn) The method of Claim 17 wherein said seed molecules comprise at least one connector portion and an interconnecting portion.

19. (original) The method of Claim 18 wherein said seed molecules comprise two asymmetric connector portions, on opposite sides of said interconnecting portion.

20. (withdrawn) The method of Claim 17 wherein said active molecules comprise said rotor moieties and said stator moieties, and at least one connector portion connected to at least one said stator moiety.

21. (original) The method of Claim 20 wherein said active molecules comprise two connector portions connected to said at least one stator moiety, on opposite sides thereof to form a first connector portion and a second connector portion.

22. (original) The method of Claim 21 wherein each said connector portion has at least one functional group thereon, which is the same for said first connector portions and said second connector portions.

23. (original) The method of Claim 21 wherein said first connector portions each have at least one first functional group thereon, which is the same for all first connector portions and wherein said second connector portions each have at least one second functional group thereon, which is the same for all second connector portions, wherein said at least one first functional group is different than said at least one second functional group.

24. (original) The method of Claim 20 wherein not all stator moieties have any said connector portions connected thereto.

25. (withdrawn) The method of Claim 17 wherein said spacer molecules comprise at least one connector portion and an interconnecting portion.

26. (original) The method of Claim 25 wherein said spacer molecules comprise two connector portions, on opposite sides of said interconnecting portion.

27. (original) The method of Claim 26 wherein each said connector portion has at least one functional group thereon, which is the same for said first connector portions and said second connector portions.

28. (original) The method of Claim 26 wherein said first connector portions each have at least one first functional group thereon, which is the same for all first connector portions and wherein said second connector portions each have at least one second functional group thereon, which is the same for all second connector portions, wherein said at least one first functional group is different than said at least one second functional group.

29. (original) The method of Claim 17 wherein said substrate comprises a first electrode and wherein said method further comprises forming a second electrode on an uppermost monolayer.

30. (withdrawn) The method of Claim 29 wherein said third monolayer is formed on said first monolayer, said second monolayer is formed on said third monolayer, with subsequent alternating third monolayers and second monolayers, with said second electrode formed on said uppermost monolayer.

31. (withdrawn) The method of Claim 29 wherein said seed layer is omitted, said second monolayer is formed directly on said first electrode, and said third monolayer is formed on said second monolayer, with subsequent alternating second monolayers and third monolayers, with said second electrode formed on said uppermost monolayer.

32. (withdrawn) The method of Claim 29 wherein said seed layer is omitted, said third monolayer is formed directly on said first electrode, and said second monolayer is formed on said third monolayer, with subsequent alternating third monolayers and second monolayers, with said second electrode formed on said uppermost monolayer.

33. (new) The three-dimensional molecular switch assembly of Claim 1 as a bi-stable molecular color switch.

34. (new) The three-dimensional molecular switch assembly of Claim 33 wherein said bi-stable molecular color switch is switchable by an applied external electric field between a colored state and a transparent state.

35. (new) The three-dimensional molecular switch assembly of Claim 34 wherein color change occurs through a molecular conformation change that alters the degree of electron conjugation across a said active molecule and, thereby, the highest occupied molecular orbital – lowest unoccupied molecular orbital states of said active molecule.

36. (new) The three-dimensional molecular switch assembly of Claim 1 as a bi-stable molecular switch.

37. (new) The method of Claim 17 wherein said three-dimensional molecular switch assembly is a bi-stable molecular color switch.

38. (new) The method of Claim 37 wherein said bi-stable molecular color switch is switchable by an applied external electric field between a colored state and a transparent state.

39. (new) The method of Claim 38 wherein color change occurs through a molecular conformation change that alters the degree of electron conjugation across a said ac-

tive molecule and, thereby, the highest occupied molecular orbital – lowest unoccupied molecular orbital states of said active molecule.

40. (new) The method of Claim 17 wherein said three-dimensional molecular switch assembly is a bi-stable molecular switch.